

20.7.1.1
20.7.2.3

EPA'S FIVE-YEAR REVIEW
OF SUPERFUND SITES:

APPLICATION TO THE BUNKER
HILL CLEANUP

Joel S. Hirschhorn, Ph.D.

EPA TAG Technical Advisor

January 25, 1999

114/552



TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
Introduction	4
EPA is legally required to conduct five-year reviews	4
EPA's guidance to regions on conducting five-year reviews	6
Studies of EPA's program	8
Comparison of EPA's annual reporting with studies	11
What Region 10 has said	14
Concerns about the Bunker Hill review	15

EXECUTIVE SUMMARY

EPA Region 10 is placing considerable emphasis on its first legally required five-year review of the Bunker Hill Superfund site cleanup. Many important technical issues and concerns supporting the view that the Bunker Hill cleanup is of low quality are supposed to be addressed by this review. EPA headquarters has said that such five-year reviews "are to determine whether: the remedy remains protective of human health and the environment; is functioning as designed; and, necessary operation and maintenance is being performed." Congress created the requirement for five-year reviews to address remedies chosen by EPA that leave hazardous contaminants at sites, because of a concern that impermanent remedies require long term attention and may not remain protective of human health and environment. A loss of protectiveness could result from failures of technology, ineffective monitoring, poor operation and maintenance activities, changing site conditions, and poor implementation of institutional controls. The Bunker Hill cleanup did not use treatment technologies to achieve a permanent cleanup and it leaves massive amounts of hazardous substances in the land and water. In theory, a five-year review could identify significant problems or deficiencies for the Bunker Hill cleanup and make specific recommendations to fix them. This has happened at some Superfund sites.

However, the five-year review program has also been highly criticized in two independent government studies, mainly because EPA was not giving them a high enough priority to avoid a backlog of sites that were not receiving timely reviews, even though the reviews were useful. The audit by EPA's Office of Inspector General found that 31% of the reviews it examined indicated a lack of protection of human health and environment, but various EPA data indicate that reviews are only reporting about 2% of sites lacking protectiveness. Another issue that has emerged in recent years is that EPA is encouraging PRPs to contribute to reviews, but they are motivated to use five-year reviews to make changes that reduce their long term costs. Nor has EPA created procedures for addressing intrinsic conflicts-of-interests among those parties that may conduct such reviews, both EPA regional offices and others, but who have been responsible for the major decisions about the original remedy and, therefore, may not conduct a truly impartial and independent review of the cleanup. EPA was legally required to report to Congress on its five-year review program, but apparently has not done so for the past four years.

Overall, there are considerable uncertainties about whether the initial five-year review for the Bunker Hill site will fairly and fully address the many technical issues and concerns already raised about the cleanup. It is not clear whether Region 10 has any track record for conducting such reviews. It is possible that this initial Bunker Hill review will be a "whitewash" with Region 10 declaring that the remedy is protective, like nearly all conclusions of EPA reviews. Nor may the review produce recommendations for improving the quality of the Bunker Hill cleanup. It is recommended that the community pay close attention to Region 10's planning of the review and, as much as possible, attempt to ensure a fair, complete, and impartial review that addresses only those issues which cannot be resolved now.

Introduction

As a result of presenting EPA Region 10 with many technical issues and concerns about the Bunker Hill cleanup, Region 10 Administrator Chuck Clarke has focused on the conduct of a five-year review as the means for EPA to address these issues and concerns.

But there are many reasonable questions about such a five-year review. Interestingly, the federal Superfund program is very complex and the five-year review activity has received relatively little attention, despite Superfund being one of the most studied environmental programs. The public interest and environmental community has never focused on the reviews as a means of obtaining better protection of human health and environment. There is no reason why concerned citizens would know much about this activity. Two government agencies that have examined the Superfund five-year review program have been very critical of it, although they also noted how some reviews identified problems and deficiencies in cleanups.

The main purpose of this report is to inform and educate concerned citizens about the five-year review program in general and also to analyze how its application to the Bunker Hill site may address some or all concerns about the Bunker Hill cleanup. EPA has said that the main purpose of reviews "are to determine whether: the remedy remains protective of human health and the environment; is functioning as designed; and, necessary operation and maintenance is being performed."

EPA is legally required to conduct five-year reviews

In the 1986 amendments to the federal Superfund statute Congress mandated that EPA conduct five-year reviews for remedial cleanups. The amendments generally placed a priority on Superfund cleanups achieving permanent remedies based as much as possible on using treatment technologies, in contrast to containment and institutional control remedies which left hazardous substances at sites and necessitated restrictions on using land or groundwater. **The five-year review requirement was devised as a safeguard for those remedies that were not permanent, because they left hazardous substances on the original sites and required periodic verification that the cleanups were continuing to protect human health and environment.** It was realized that a lot could go wrong with cleanups dependent on: containment of wastes, systems that had to operate for many years, well enforced institutional controls, such as land use restrictions, or natural attenuation remedies requiring many years of monitoring. Subsequently, in 1990, EPA finalized the National Contingency Plan (NCP) as a set of regulations governing the Superfund program, and it included some specific language on the requirement for five-year reviews. It is important to see the exact language in the law and the regulations and to understand subtle but important differences in the language used.

The key language in the Superfund law is:

"If the President [EPA] selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President [EPA] shall review such remedial action no less often than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented." [emphasis added]

The law also said that EPA would have to take any necessary action appropriate to assuring protectiveness. Note the use of the word "any" in the above statement, which would seem to indicate a very stringent view of the basis for requiring reviews.

In the subsequent NCP EPA used the following language:

"If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five-years after initiation of the selected remedial action." [emphasis added]

In place of the word "any" EPA introduced the concept of not having unlimited use and unrestricted exposure as a condition establishing the need for a five-year review. This could be seen as a softening of the original statutory requirement. That is, some hazardous substances, pollutants or contaminants might be left at a Superfund site, but if the levels were such that there were no restrictions on use or exposure, then reviews would not be required. In fairness, one could argue, of course, that it is impossible to remove absolutely every atom or molecule of hazardous substance from a Superfund site and, therefore, that the original statutory language was impractical because it implied leaving absolutely no amount of contaminants in order to avoid the review requirement. This more pragmatic NCP interpretation apparently has never been challenged in court. One potential problem of course is that risk assessments and cleanup standards could be changed over time so as to change or remove original restrictions, and doing so could then remove the requirement for future five-year reviews. The NCP also clarified that all Records of Decision (RODs) had to clearly state whether five-year reviews were necessary. In the preamble to the NCP EPA also said the following:

"EPA agrees that the review should general focus on monitoring data, where available, to evaluate whether the remedy continues to provide adequate protection of human health and environment. New technologies will be considered where the existing remedy is not protective, but the five-year review is not intended as an opportunity to consider an alternative to a protective remedy that was initially selected."

In this statement one sees an important EPA perspective that may have importance for seeing the limitations of the review for the Bunker Hill site. That is, EPA seems to believe that an original technical approach must be implemented and found non-protective, rather than considering, as part of a review, some newer technology, for example, to replace a part of an original remedy that may or may not have been fully implemented. In contrast, EPA has a remedy

update program as part of its Superfund reforms that is aimed at changing remedies because of new science or technology if costs can be reduced. However, EPA's 1996 guidance to regions on conducting remedy updates did not consider how such actions related to five-year reviews.

EPA's guidance to regions on conducting five-year reviews

EPA Headquarters has issued guidance for regional offices, although regions are always free to disregard the guidance on the basis of site-specific circumstances. The guidance clearly said that examining whether a cleanup remained protective meant, for example, if the remedy depended on containment with a cap whether the cap was still effective, if the remedy depended on institutional controls whether they remained in place, and if the remedy included groundwater collection and treatment whether such a system was performing as predicted. The main guidance was issued in 1991, after finalization of the NCP and just in time to handle the first required reviews, and it set the structure of three distinct levels of reviews, differing mainly in the scope of review activities.¹ It was contemplated that the simplest Level I review would be appropriate in all but a relatively few cases. Only Level II and III reviews included sampling for getting new data to confirm existing remedy protectiveness. The guidance also established two main types of reviews: statutory and policy.

The statutory sites are those with Records of Decision issued after the Superfund statute was amended in 1986, which created the requirement for the reviews. Statutory reviews apply to NPL sites, construction complete sites, and sites delisted from the NPL. Policy or discretionary reviews are for sites that strictly speaking did not legally require reviews but which EPA decided should receive them, including sites with remedies conducted prior to 1986. From a risk perspective, of course, both types of sites pose equal needs for reviews because of hazardous materials left on the site. If anything, one might even argue that pre-1986 sites might be of lower quality than later sites, simply because of less experience with Superfund cleanups. Bunker Hill like most sites is a required, statutory review.

Subsequent supplemental guidance in 1994 was designed to provide a fourth, even simpler, streamlined and lower cost review, termed Level Ia, appropriate for sites where remedial construction was ongoing.² For example, EPA estimated that 160 to 170 hours were necessary for a Level I review, but only 30 to 40 hours for a Level Ia review. Nearly 30% of reviews seem to be Level Ia type. It appeared that the creation of the Level Ia reviews was in response to growing criticism, including by the EPA Inspector General, about the backlog of reviews. By reducing the scope and cost of many reviews the logic was that EPA regional offices would be

¹EPA, "Structure and Components of Five-Year Reviews," May 23, 1991, OSWER Directive 9355.7-02.

²EPA, "Supplemental Five-Year Review Guidance," July 26, 1994, OSWER Directive 9355.7-02A.

able to conduct more reviews. This guidance also clarified that reviews were to cover the entire site and all operable units or multiple remedies. However, none of the EPA guidance seems to address the tough issue of deciding whether a declaration of protectiveness or the lack of it requires the same condition for all parts of a remedy. This supplemental guidance also established priorities, with the first priority being all statutory reviews, the second priority being policy reviews where the lead agency has completed remedial action and is no longer on-site, and the third priority being all remaining policy sites. Interestingly, the Office of Inspector General audit (discussed below) found some inappropriate uses of the Level Ia review and ones where problems with the cleanup were not identified.

A second supplemental guidance was issued in late 1995;³ it explicitly said that it was a response to an Office of Inspector General's (OIG) audit of the review program (discussed below). In the interest of performing more reviews with limited resources, EPA headquarters encouraged its regional offices to use "potentially responsible parties (PRPs) to provide information for five-year reviews." There was no direct attention to or discussion of the obvious issue of a conflict-of-interest for PRPs who might lack the objectivity to identify problems with remedies that they had conceived, implemented, and paid for. The guidance clarified that regional officials would have to clearly state whether the remedy is protective, is not protective, or if it would be protective if certain measures were taken. The guidance also stressed that if a remedy was determined to lack protectiveness then regional offices should present recommendations for actions, milestones toward achieving protectiveness with clear timetables, and should also state which agency has oversight responsibility to ensure that the necessary measures are completed. This guidance also clarified that "A Type II or Type III review should be employed only when site-specific circumstances indicate a need for a recalculation of the risk, or a new risk assessment, respectively."

What merits more attention is the issue of different possible views about the most fundamental finding that a five-year review is supposed to explicitly present as a declaration in the report, about the presence or absence of protectiveness. There is a need for improved EPA guidance that addresses the criteria that regional offices should use when reaching their decision about protectiveness. None of the existing EPA guidance actually presents specific, detailed clear criteria by which reviewers could decide what the declaration should be. For example, if some required part of a remedy (such as a monitoring well) is simply not functioning or being performed as designed or planned, is that alone sufficient to issue a declaration that protectiveness is lacking? Or, is it necessary for the review to document some uncontrolled releases of hazardous substances, or to document some actual unacceptable exposure necessary for a declaration of a lack of protectiveness? If only one operable unit is not functioning entirely as designed or planned but the remainder of the remedy is alright, is that situation sufficient to declare that protectiveness is lacking? The goal of improved EPA guidance should be to remove any ambiguities about the key decision process regarding protectiveness with regard to any and all

³EPA, "Second Supplemental Five-Year Review Guidance," Dec. 21, 1995, OSWER Directive 9355.7-03A.

conditions that justify a declaration that protectiveness is lacking at the time of the review.

This author has been told that EPA headquarters in consultation with regional offices has been developing new guidance for the reviews that may be released in the Summer, 1999.

EPA headquarters issues many, many guidance documents for the Superfund program and some of these have some connection to five-year reviews, but often do not refer to them. However, the guidance on how land use is considered in making remedy decisions also included reference to five-year reviews.⁴ Under the heading "Future Changes in Land Use" the directive said: "Where waste is left on-site at levels that would require limited use and restricted exposure, EPA will conduct reviews at least every five years to monitor the site for any changes. Such reviews should analyze the implementation and effectiveness of institutional controls with the same degree of care as other parts of the remedy. Should land use change, it will be necessary to evaluate the implications of that change for the selected remedy, and whether the remedy remains protective."

The issue for conduct of the reviews is whether there is a sufficient effort to identify problems with institutional controls. Many institutional controls could be difficult to fully and fairly evaluate, particularly the extent to which they are implemented as originally planned. EPA's guidance documents do not provide explicit details on the extent to which some failure of institutional controls may constitute sufficient basis for declaring a lack of protectiveness for a remedy.

Studies of EPA's program

In early 1995 EPA's Office of Inspector General completed its independent audit of the five-year review program.⁵ It found a substantial backlog of five-year reviews existed because EPA managers had not given them a high priority. As normally done, the audit covered only a sample of three of the ten EPA regions. It reported that at the end of fiscal year 1994 only 30% of the NPL Superfund sites that were supposed to have received statutory and policy reviews had received them. The report concluded that "the backlog was generally caused by the low priority that management placed on the reviews and it was noted that EPA officials who were interviewed often "appeared to view the five-year reviews as a nuisance, and gave the impression that the reports had little or no value. ...It was apparent from our interviews that regional officials did not believe the five-year reviews were important." The audit also found problems in the quality of reviews, including ones that did not follow EPA guidance.

⁴EPA, "Land Use in the CERCLA Remedy Selection Process," May 25, 1995, OSWER Directive 9355.7-04.

⁵EPA, Office of Inspector General, "Backlog Warrants Higher Priority for Five-Year Reviews," Audit Report, March 24, 1995.

On the positive side, the OIG audit found that the "reviews were valuable tools to identify successful remedies or those remedies that have developed problems or have failed." This clearly made EPA's backlog significant. In one case, a site visit found that required surface water sampling had not been conducted for years and that a landfill cover had been damaged. The reviews were also important for checking on Operation & Maintenance (O&M) activities and cited an example where a review activity had found a dead animal inside a monitoring well that rendered it ineffective. The main recommendation was that the Superfund program should give a higher priority to the reviews. For the audit's sample of review reports, some 31% were deemed to lack protectiveness.

One specific result of the OIG audit was that EPA headquarters created a lower cost review and it said that it would take action to increase the priority of the reviews. This author has been told that the OIG is currently conducting a followup audit of the five-year review program.

A study by the Congressional General Accounting Office of the Superfund program also examined the reviews and generally supported the findings of the OIG audit.⁶ GAO concluded that "these reviews have often revealed potential and actual problems that the states or responsible parties have had to correct. However, the agency has a significant backlog of overdue reviews and consequently may be unaware of deteriorating conditions at some sites." At the time of the GAO study there was no clear indication that the backlog problem was being solved and GAO said that "the agency may not be aware of problems that may be occurring at other Superfund sites."

More specifically, GAO reviewed O&M activities at 57 sites, including 43 sites at which five-year reviews had been performed and at 3 of these GAO conducted case studies. In one case GAO found that the EPA review revealed that the site's responsible party had not been sampling groundwater as was required. The review caused a sampling plan to be implemented. At another Superfund site GAO found that a review had discovered that no required maintenance had been implemented and that trees were growing on the landfill cover, a most serious problem. For another site, EPA recommended that the state conduct surface water sampling more frequently, because of high contaminant levels.

Clearly, both the OIG and GAO studies verified the wisdom of the congressional mandate and they identified the paradox of five-year reviews being very useful tools but that EPA was not giving them a high priority. The OIG report made a point about the benefit of EPA identifying problems with cleanups "before serious damage occurs or they become a public scandal." But it seems that EPA Superfund managers did not see the reviews in the same positive way. Why? The most logical interpretation is that EPA officials in regional offices were not motivated to identify problems or deficiencies with "their" cleanups. Moreover, despite the OIG and GAO reports, there was no widespread

⁶GAO, "Superfund Operations and Maintenance Activities Will Require Billions of Dollars," Sept. 1995.

interest in the subject by environmental or public interest groups. EPA's assertions that the backlogs found by the OIG and GAO studies were an inevitable consequence of inadequate resources seem implausible considering the relatively low costs of conducting reviews, nor were they consistent with the attitudes of EPA staff found by the OIG audit.

In 1996 a professional paper was given at a major conference on this same subject.⁷ The paper presented a good review of EPA's program. Other than informing professionals about EPA's implementation, the paper focused on presenting a summary of opportunities for PRPs to reduce cleanup costs by participating in the review process. The paper noted that PRPs were slated to pay the majority of the many billions of dollars for O&M activities at Superfund sites. While concerned citizens would likely see reviews as a major opportunity for the government to identify deficiencies with cleanups in progress or completed, PRPs could see reviews very differently, because they could focus on how some O&M activities might be reduced or eliminated. The paper noted that "USEPA recognizes that PRPs may propose additional response actions to reduce O&M activities or to contain rising O&M costs." The paper identified nine specific indicators of opportunities to reduce costs. These included, for example, reducing monitoring requirements, changing cleanup standards, and changing O&M activities.

EPA has had its own contractor study of the five-year review program to collect data and perform analysis to help EPA improve its five-year review program. The study was conducted in the summer of 1997 and examined 100 first five-year review reports prepared by all ten EPA regional offices, including two from Region 10. There was also data on the number of first five-year reviews completed by regions versus the number of reviews remaining to be completed through FY 2000. Only a small fraction had been completed, generally much less than 10%. In Region 10, it appeared that only 2 out of 42 sites had received first five-year reviews. Of the 100 reviews studied, 98% fit EPA's Level I or Ia, and 2% were Level II; there were none in the Level III category. The Level I and Ia reviews are the smallest efforts, Level II is more extensive, and Level III even more extensive (as discussed above). The most important purpose of a review is to provide a statement whether the site remains protective of human health and the environment. The study found that 72% of reviews provided statements that the remedy remained protective, 10% had information that implied protectiveness, 13% did not have an explicit statement because the remedy was still being implemented, 2% had no required statement or implicit information, and **only 2% stated that the remedy was not protective**. One review said that further investigation was necessary to determine protectiveness.

The study also found that 55% of reviews made recommendations, with the most common being types being: improve O&M (30%), upgrade the remedy (16%), conduct additional evaluation or investigation (13%), and repair the remedy (9%). **Considering that only 2% of the reviews said that the remedy had not remained protective, the fact that 25% needed upgrading or repair is quite interesting, certainly suggesting that the reviews had found**

⁷J.L. Pintenich, "Components, Levels, and Opportunities In The Five-Year Review Process," Proceedings of Hazwaste World and Superfund XVII Conference, Oct. 1996.

protectiveness either diminished or in jeopardy. It also suggests that EPA regional offices may be very reluctant to officially declare that a remedy they originally conceived and approved is explicitly declared as not being protective. Also, interestingly, clearly nearly all of these 25% resulted from Level I or Ia reviews, the most minimal types of reviews. It might be reasonable to speculate that more intensive reviews (Level II or III) could be even more effective in identifying problems with remedies, if they were truly objective and impartial.

Importantly, the OIG report that examined 26 review reports from Regions 3, 5 and 6 found that 8 of them, or 31%, "indicated that the remedies were not protective of human health and the environment." In addition to 16 reports declaring that the remedies were protective, 2 reports provided no conclusion about protectiveness. This result of a 31% remedy failure rate is quite inconsistent with the contractor study finding that only 2% were not protective. However, the answer may be that the combined total of the 25% discussed above and the 2% explicitly declaring remedies non-protective is what should be compared to the OIG value of 31%, because many review reports (particularly older ones) may have to be interpreted as to their basic determination about protectiveness. EPA's contractor may have been less objective or less willing than the OIG audit to interpret review reports as saying that there was a lack of protectiveness..

Comparison of EPA's annual reporting with studies

The Superfund statute also required EPA to report to Congress on the five-year reviews, including "the results of all such reviews." In a 1989 report EPA said that it "will report annually the results of all five-year reviews that were conducted during the preceding twelve month period."⁸ This author was told by an EPA headquarters official that this reporting has been done as part of EPA's annual Superfund reports. However, these reports to Congress on the progress of the Superfund program seem to have been stopped by EPA several years ago. The three most recent Superfund reports are available on the EPA's internet web site, with the most recent one being for FY1994. Thus, EPA has not fulfilled its commitment to reporting on the five-year review program for four years (i.e., FY1995 through FY1998).

The following information was retrieved from the three reports. In FY1991 there was one review (i.e., consistent with the first guidance in that year); in FY1992 there were 3 statutory reviews and 3 policy reviews; in FY1993 there were 6 statutory reviews and 19 policy ones; in FY1994 there were 15 statutory reviews and 10 policy ones. Note that in FY1993 out of the 22 statutory reviews required in that year only 4 were conducted, and in FY1994 out of the 39

⁸EPA, "A Management Review of the Superfund Program," 1989. In this report EPA made a commitment that no NPL site would be delisted without receiving at least one five-year review. However, a recent Amended ROD for the Munisport Superfund site in Florida explicitly committed to delisting and said that no five-year review was necessary even though the limited remedial action had clearly not produced a condition for future unrestricted use.

required only 10 were conducted. Clearly, statutory reviews were not receiving the highest priority, which may explain the priority-setting in the 1994 guidance. The FY1992 report did not reveal how many reviews were required in that year. The grand total for FY1991 through FY1994 was 57 reviews. For FY1993 and FY1994 the percent of required reviews actually performed in the required years was 23% (i.e., 14 of 61). These data support the conclusions by OIG and GAO concerning a backlog of unperformed, required reviews. Also, EPA's 1997 contractor study indicated that the 100 first year reviews examined represented only 11% of the total of 930 reviews required by FY2000; however, it is likely that those 100 reviews represented what was accomplished through FY1996, leaving four years to accomplish the remaining 89%. However, considering that only 25 required reviews were conducted in the period of FY1991 through FY1994, and probably 75 more in FY1995 and FY1996, it seems that there is still a major backlog of required reviews.

As to the results of the reviews, the annual reports presented minimal information. It was said that nearly all the reviews confirmed the protectiveness of the remedies. Although, as discussed above, the problem may be a difference between the technical substance in review reports versus what is explicitly declared in terms of the presence or absence of protectiveness. There was only one description of a review finding a problem and addressing it; this was for a site handled in FY1992 where the review recommended development of more enforceable deed and land use restrictions, which were subsequently implemented. This apparent fraction of one site that may have had a determination of non-protectiveness out of a total of 57 is consistent with EPA's contractor study that indicated only 2 out of 100 sites with such a negative finding. But it would not be consistent with the OIG's finding of some 31% lacking protectiveness. **It seems fair to conclude that EPA's official record of reviews through FY1994 was not impressive in terms of identifying cleanup problems or deficiencies supporting a conclusion of a lack of protectiveness. One would expect, of course, EPA to take the position that so few reviews find a lack of protectiveness because EPA has done such a good job in the first place in conceiving and implementing Superfund cleanups. But another possibility is that the reviews lack enough effort or objectivity to accurately identify significant problems indicating a lack of protectiveness or more likely that they often have not explicitly stated a lack of protectiveness, even when the technical findings support such a negative declaration.**

The FY1993 and FY1994 reports presented tables of sites that required reviews in that year and which ones had actually received reviews. In FY1994, there were two Region 10 sites which had not received reviews. For Region 10, the contractor study indicated that only 2 required reviews out of a total of about 42 required by FY2000 had been conducted. This suggests that Region 10 does not have a lot of experience with conducting reviews. In fact, according to the FY1993 report, those 2 Region 10 reviews, which were policy reviews, were conducted in early FY1993,⁹ meaning that no other reviews, including a number of required

⁹These two sites were also identified in an attachment to EPA's second guidance document which presented the status of reviews for all regions for FY1992 through FY1995.

statutory reviews, were conducted in FY1994, FY1995 and FY1996. All of this information strongly suggests that the review effort has been a low priority in Region 10. It would be useful for Region 10 to produce reports done in FY1997 and FY1998 for required statutory reviews to demonstrate its competence and experience.

It seems fair to conclude that all the available information indicates that EPA's five-year review program is far from a success and a very low EPA priority. This supports concerns by citizens about the emphasis being placed on a review for the Bunker Hill site by Region 10. It should also be noted that over the past several years EPA has had a major Superfund Reform program consisting of many different activities and improvements in the program. However, there was no reform aimed at improving the five-year review effort. This is most interesting because of the trend in recent years of increasing numbers of Superfund cleanups being dependent on containment and institutional controls. Yet most studies of the Superfund program have not paid attention to the five-year review program, even when addressing relevant issues, particularly long term effectiveness of remedies.¹⁰ The lack of attention to the five-year program by Congress and public interest groups means that there is no balancing of the likely inherent low interest within regional offices in using reviews to identify problems or deficiencies requiring attention and increased spending. In theory, the five-year review program is a critically important quality control program for Superfund cleanups. But there is no evidence that it has yet functioned in an optimal way. This is not only unfortunate for Superfund cleanups, but it has failed to set what might have been a positive example for many other cleanup programs in the country, some federal and some state, where there is also increasing use of remedies that leave hazardous materials at sites. Perhaps, eventually, more citizens in Superfund communities will ask the logical question: "Is this cleanup still working effectively?" If they do, perhaps then will EPA and others start to pay more attention to the five-year reviews.

Moreover, five Region 10 required statutory reviews were indicated for FY1992 through FY1994, which apparently had not been conducted through FY1996, because only two reviews were indicated in EPA's 1997 contractor study.

¹⁰A very good independent study "Linking Land Use and Superfund Cleanups - Uncharted Territory," by Resources for the Future (June 1997), presented considerable evidence of problems with the long term effectiveness of institutional controls at Superfund sites. But even this study did not examine the five-year review program. One of the ideas presented in the report was for EPA to create a new office or for a new agency to be created "whose sole responsibility would be long-term oversight of contaminated sites." It also suggested that the Superfund law "could require EPA to review land use controls at NPL sites every three years (or some relatively short period) and stipulate damages against landowners who violate property use restrictions specified in consent decrees or in RODs." Another study, "A Remedy for Superfund - Designing a Better Way of Cleaning Up America," Clean Sites (Feb. 1994), noted the need to "Establish procedures for long-term control and oversight of sites that are remediated to less than residential cleanup levels." But it did not even mention the five-year review requirement.

Lastly, it should be noted that no information found on the five-year review program has indicated any attention to reviews after the initial one, and whether regional offices are conducting them in a timely manner and what they are finding. Since significant numbers of reviews were first conducted in FY1992 and FY1993, followup reviews should have already been done at many sites. While it appears that there is still a major backlog of first five-year reviews, it is even more likely that there is a larger total backlog when subsequent reviews for all sites are considered, including construction complete sites and sites delisted from the NPL.

What Region 10 has said

In a letter dated Nov. 12, 1998 to the SVPAC/CRC, Co. by Region 10 Administrator Chuck Clarke, EPA said that each of its responses to a list of specific issues would indicate "whether we can respond through our five-year review process or address it through an alternate process." In a few cases, EPA presented definitive statements, but for some issues EPA asserted that action would be taken as part of a five-year review. The key statements were:

Contaminants of concern issue: "The effectiveness of arsenic and cadmium level cleanup will be evaluated in our *Five Year Review*."

Containment issue: "The ultimate remedy is expected to provide the necessary permanence through the Institutional Controls Program, O&M requirements, and *Five Year Reviews*."

Lead cleanup standard issue: "EPA and the State will evaluate the effectiveness of the soil cleanup level via *five year reviews* at the Bunker Hill study area."

House dust issue: "As part of the *five year review* process, house dust levels of lead are being evaluated, as there is a specific remedial action objective for house dust levels of lead in the 1992 ROD (community average of 500 ppm)."

Public participation and EPA's responses issue: "As EPA and the State begin to work with the public to perform *five year reviews* for the Box, additional input will be solicited."

Principal threat materials issue: "While containment in the Smelter Complex does not have the same level of certainty as does treatment, a monitoring network has been established to monitor the closure area on the Bunker Hill study area over time and will be re-evaluated as to its protectiveness on a *five year* frequency."

1996 ROD Amendment and change in management of principal threat materials issue: "While containment on the study area does not have the same level of certainty as does treatment, a monitoring network has been established to monitor the closure areas over time and will be re-evaluated as to its protectiveness on a *five year* frequency."

One can see that in only 7 of the 18 issues that EPA summarized and responded to was there some explicit reference to use of one or more five-year reviews to resolve the issue.

After receiving some concerns about the reliance on the review process, in a letter on Dec. 21, 1998 Chuck Clarke said the following:

"I want to address your concerns about the Five-Year Review process. Please understand that the Five-Year Review is the primary mechanism under the Superfund program through which we can evaluate the effectiveness of our cleanup efforts. The review is a rigorous and deliberate check on whether the chosen remedies are proving to be protective. The Five-Year Review at Bunker Hill will include using empirical data from the field as well as recommendations from national experts and other information. Much field data has already been collected and more will be gathered during the Five-Year Review. For example, samples of outdoor air, household dust, and rights-of-way have already been collected. As I have said before, your comments and the reports from your technical advisors are very timely because they coincide with the start of the Five-Year Review, a formal public process, through which we can address many of your concerns as well as the concerns of other members of the community." [emphasis added]

The two statements highlighted above are not consistent with EPA's national guidance on five-year reviews nor with any information obtained on the program. It is difficult to describe five-year reviews as "rigorous." The most rigorous of the four different levels of review is Level III, but that version is not planned for Bunker Hill. Nor is the use of "national experts" an ordinary practice and Region 10 has not revealed exactly who these national experts are and, therefore, there is no basis for concerned citizens trusting their independence and objectivity. They are most likely EPA personnel.

Clarke also referred to the state of Idaho and the Panhandle Health District and noted that "The cleanup efforts of these agencies will also be evaluated during the Five-Year Review and during routine monitoring of the Bunker Hill cleanup." But if officials from these agencies are directly involved in the review, there may be insufficient objectivity and independence to obtain a truly critical, impartial and fair review.

Concerns about the Bunker Hill review

The logic of this analysis is to use all of the previously reviewed information about EPA's five-year review program to examine everything that EPA Region 10 has said about its planned use of the review process for Bunker Hill. The goal is to better inform concerned citizens about the limits of what may be done for the Bunker Hill site and perhaps to improve the usefulness of the review from a citizen's perspective, if Region 10 is responsive to citizen concerns.

-- Not all of the technical issues and concerns raised formally in TAG reports and letters to Region 10 will be addressed in the review process. There are few public participation opportunities for five-year reviews, other than the Region informing the community about its intention to conduct a review and then making a final report available.

-- Some aspects of the remedy have not yet been fully implemented, and these are unlikely to be critically reviewed.

-- To this date Region 10 has not revealed to the public the actual normal scope of activities for different Levels of review. In particular, a Region 10 representative has informed this author that at least a Level II review is planned for Bunker Hill, and the scope of a normal Level II review has not yet been revealed to the public.¹¹ EPA's guidance indicates that a Level II review typically requires from 725 to 790 hours of time and non-labor costs of about \$34,000 or less (presumably for sampling and testing). This is roughly equivalent to two staff persons spending about two months on a review. Very few Superfund sites nationwide have received Level II reviews, and it is not clear whether any site has received a Level III review. In a Level II review the original risk assessment numbers would likely be recalculated, based on changes in various parameters, and in a Level III review a totally new risk assessment would be performed and the scope of activities would be much larger, with the amount of labor doubled to over 1,600 hours and non-labor spending doubled over Level II. Some limited sampling to get new data is likely in both. It would be to the benefit of the community, perhaps, to have a Level III review; however, a concern would be how much time Region 10 will take to complete the review and exactly what issues Region 10 will address in the review. Waiting a long time for a completed review and its recommendations to resolve important community issues and concerns could be undesirable.

-- While some limited sampling and new data may be obtained, it is not clear whether the effort would be effective in independently verifying older blood lead and soil lead data important to reaching a conclusion about remedy protectiveness. For example, would the review obtain new data on current levels of lead in remediated residential soils and amounts of house dust and contaminant levels? Nor is it clear whether the review will critically examine the quality of the key lead blood data for children being used as a performance standard for the cleanup.

-- It is not clear from current EPA guidance on five-year reviews exactly what conditions would have to be identified in order for the review to explicitly declare a lack of protectiveness.

-- It is not clear whether the first five-year review will be conducted solely by EPA, or whether the state, the Panhandle Health District, or even the PRPs (mining companies) might be involved in some ways in the effort. Clarke's comments indicated state participation.

¹¹Interestingly, EPA has said "It is only where remedy failure or other serious problems are indicated that a higher level of review is warranted." Memorandum from Elliott P. Laws to OIG, March 10, 1995, as given in the OIG audit report.

-- There is an intrinsic conflict-of-interest whenever the same people and agencies that selected and implemented a cleanup also control a review. The natural tendency is for such parties to defend their past decisions and actions. EPA has never established procedures for truly independent five-year reviews.

-- Citizens were not given an opportunity to discuss specific national experts that Region 10 has said they plan on using, in order to ensure maximum objectivity and independence.

-- There is no information on Region 10's track record for reviews and, particularly, whether they have performed Level II reviews, followed national guidance, and stressed identifying problems with protectiveness and fixing them, or whether they have stressed reducing costs. The initial five-year review is overdue, if any aspect of the Bunker Hill remedy described in the 1991 and 1992 RODs was initiated (or constructed) prior to 1994, which may be the case, although removal activities would not count.

-- One should not ignore the financial interests of the state and the PRPs in using a review to make changes in some aspects of the remedy that will reduce their future costs. The initial five-year review could actually cause an even lower quality cleanup.

-- It is very likely that EPA's initial review will be positive and the remedy declared protective. EPA will probably assert that over time monitoring data will be periodically examined in future reviews to determine whether or not the remedy remains protective. However, there currently is no evidence that any regional offices are conducting regular five-year reviews after initial ones.

Finally, it is important to point out that under the Superfund program's remedy update reform, mentioned earlier, that EPA regional offices have submitted implementation plans. Remedy updates generally mean significant and often fundamental changes in the original remedy, including, for example, using different technology. In all but two of the regions, the plans have indicated that five-year reviews are used to consider remedy changes. This is very important, because the normal thinking is that a five-year review only considers possible fixes of the original remedy. Region 10's implementation plan for the remedy update effort says: "All sites undergoing Five Year Reviews will also be considered as possible update remedy candidates."¹² This is extremely important for the upcoming discussions with Region 10, because the position of the community can be that there are sound reasons to make certain changes in the previously determined remedy for Bunker Hill. Moreover, it should also be noted that some of the remedy updates that EPA has documented have involved increased costs. For example, in FY 1997 there were five remedy updates in three EPA regions which ranged from \$300,000 to \$12 million each. It is critically important that Region 10 scope the five-year review to gather information necessary to also consider remedy changes.

¹²EPA, "Updating Remedy Decisions at Select Superfund Sites - Summary Report FY 1996 and FY 1997," July 1998.

207.1.1
SILVER VALLEY PEOPLE'S ACTION COALITION/CRC, CO.
PO BOX 362
KELLOGG, ID 83837

Dear Sean Sheldrake,

Enclosed is Dr. Joel Hirschhorn's latest T.A.G. studies for your information.

Barbara Miller
T.A.G. Advisory Committee

enclosure.

A Copy was also faxed to Chuck Clarke's office on 2/5/99.

